|   | Туре | L # | Hits | Search Text   | DBs  | Time Stamp               |
|---|------|-----|------|---|--|--------------------------|
| 1 | BRS  | L1  | 14   | (revis\$3 or alter\$3 or chang\$3) same (chemical) same (electropla\$3) same bath | USPAT;<br>US-PGP<br>UB;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2003/03/05<br>15:39      |
| 2 | BRS  | L5  | 27   | (revis\$3 or alter\$3 or chang\$3) with chemical with electroplat\$3              | USPAT;<br>US-PGP<br>UB;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2003/03/05<br>16:00      |
| 3 | BRS  | L6  | 234  | alter\$3 or control\$3 or   | USPAT;<br>US-PGP<br>UB;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | 2003/03/05<br>16:05      |
| 4 | BRS  | L7  | 30   | 6 same thickness  | USPAT;<br>US-PGP<br>UB;<br>EPO;<br>JPO;<br>DERWEN<br>T;<br>IBM_TD<br>B | :<br>2003/03/05<br>16:32 |
| 5 | BRS  | L9  | 1    | (chemical adj<br>concentration) same<br>(electroplating adj bath)                 | O L O , ;  | 2003/03/05<br>16:49      |

US-PAT-NO: 5006420

DOCUMENT-IDENTIFIER: US 5006420 A

TITLE: Electroplated steel sheet having a plurality of coatings, excellent in workability, corrosion resistance and water-resistant paint adhesivity

## ----- KMIC -----

The contents of iron, chromium and zinc in the iron-chromium-zinc alloy coating as the lower layer and the another iron-chromium-zinc alloy coating as the intermediate layer can be adjusted by altering the contents of zinc sulfate, ferrous sulfate and chromium sulfate in the electroplating bath, the electric current density of plating, the pH-value of the plating bath and/or the flow velocity of the plating bath. More specifically, increase in the contents of ferrous sulfate and chromium sulfate in the electroplating bath, increase in the electric current density of plating, increase in the pH-value of the plating bath, or decrease in the flow velocity of the plating bath causes increase in the contents of iron and chromium in the alloy coating. Therefore, it is possible to form an iron-chromium-zinc alloy coating as the lower layer and another iron-chromium-zinc alloy coating as the intermediate layer respectively having prescribed contents of iron and chromium by altering the chemical composition of the electroplating baths and/or the plating conditions.

| L Number | Hits    | Search Text  | DB                 | Time stamp       |
|----------|---------|--|--------------------|------------------|
| 1        | 26695   | electroplating electroplate electroplated electroplates        | USPAT;<br>US-PGPUB | 2003/03/05 18:38 |
| 2        | 563213  | concentration  | USPAT;<br>US-PGPUB | 2003/03/05 18:38 |
| 3        | 1015525 | rate   | USPAT;<br>US-PGPUB | 2003/03/05 18:38 |
| 4        | 45      | (electroplating electroplate electroplated electroplates) with | USPAT;<br>US-PGPUB | 2003/03/05 18:38 |